IN THE CLAIMS:

1. **(Currently Amended)** A method <u>executed in hardware</u> for simulating events <u>in a physical system</u> comprising the steps of:

assigning events <u>of said physical system that are</u> to be simulated to each of N processing elements (PEs); and

said N PEs simulating events in parallel, in a simulation step where each processing element (PE) simulates assigned events in blocks ~~of~~ <u>that include</u> M edge events, where M is approximately e $\log_e N$, <u>e is approximately 2.71828,</u> and an edge event is an event whose simulation in a processing element is directly affected by information originating in another processing element.

2. **(Original)** The method of claim 1 where each of said simulation steps comprises one or more iterations.

3. **(Original)** The method of claim 2 where each iteration comprises a simulation phase followed by a communication phase and an assessment phase.

4. **(Original)** The method of claim 3 where, in each communication phase, each of said PEs shares information with one or more other PEs from said N PEs, which information is needed by said other PEs to simulate edge events of said other PEs.

5. **(Original)** The method of claim 4 where said information shared by each PE in a communication phase of an iteration is related to events simulated by said each PE in said iteration.

6. **(Original)** The method of claim 4 where said assessment phase carried out by each of said PEs comprises the steps of

determining whether the existence of a simulation error can be excluded, and

directing that another simulation iteration is to take place when the existence of a simulation error cannot be excluded.

7. (Currently Amended) The method of claim **6** further comprising a floor advancement step[[,]] <u>that is</u> carried out when said step of determining ~~, carried out in all of said PEs, excludes existence of a~~ <u>in said assessment phase concludes that there are no</u> simulation error<u>s</u> in a simulation iteration, ~~that~~ <u>where the advancement step</u> advances a simulation floor time of a present simulation step to form a modified simulation time floor, for simulating another block of M events in a next simulation step.

8. (Currently Amended) The method of claim **6** further comprising a step of advancing a simulation floor time from a simulation floor time of a present simulation step, to form a modified simulation floor time, for starting from said modified simulation floor time the simulation of another block of M events in a next simulation step, when said step of determining <u>in said assessment phase concludes that there are no</u> ~~, carried out in all of said PEs, excludes the existence of a~~ simulation error<u>s</u> in said present simulation step.

9. (Original) The method of claim **8** where said modified simulation floor time corresponds to the earliest simulation time of the Mth edge event simulated by said N PEs in said present simulation step.

10. (Original) The method of claim **4** where events are simulated seriatim in each simulation phase.

11. (Original) The method of claim **10** where for simulating a second event following a simulation of a first event,

a time interval is identified between a simulation time of said first event and a simulation time of said second event, and

said second event is identified for simulation.

12. (Original) The method of claim **11** where said second event is identified for simulation following a step of accounting for simulation of said first event and simulation of events in said other PEs from said N PEs.

13. (Original) The method of claim **12** where said accounting is based on present knowledge of states of said other events.

14. (Original) The method of claim **12** where said accounts for simulation of events in said other PEs from said N PEs accounts for events simulated during said time interval.

15. (Original) The method of claim **11** where said second event is identified by employing a first random number.

16. (Original) The method of claim **11** where said time interval is identified with a second random number.

17. (Original) The method of claim **16** where said second random number is set to said first random number.

18. (Original) The method of claim **15** where said first random number is derived from a random variable having a uniform distribution.

19. (Original) The method of claim **15** where the seriatim simulation of each event in said block of M events, in a first iteration starting from a given simulation floor time, employs an independently derived random number from said random variable, forming thereby a sequence of random numbers, and simulation of said block of M events in all subsequent iterations starting from said given simulation floor time employs said sequence of random numbers.

20. **(Original)** The method of claim **18** where the sequence of random numbers employed in one simulation step is different from a sequence of random numbers employed in another simulation step.